Volunteer Lake Assessment Program Individual Lake Reports
NUBANUSIT LAKE, NELSON, NH

MORPHOMETRIC DATA

								TROPHIC CLASSIFICATION		KNOWN EXOTIC SPECIES

Watershed Area (Ac.):	5,184	Max. Depth (m):	30.2	Flushing Rate (yr¹)	0.4	
Surface Area (Ac.):	715	Mean Depth (m):	11.5	P Retention Coef:	0.67	
Shore Length (m):	13,700	Volume (m³):	30,024,500	Elevation (ft):	1376	

TROPHIC CLASSIFICATION

| Year	Trophic class
1988	OLIGOTROPHIC
2003	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	D.O. (% sat)	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.
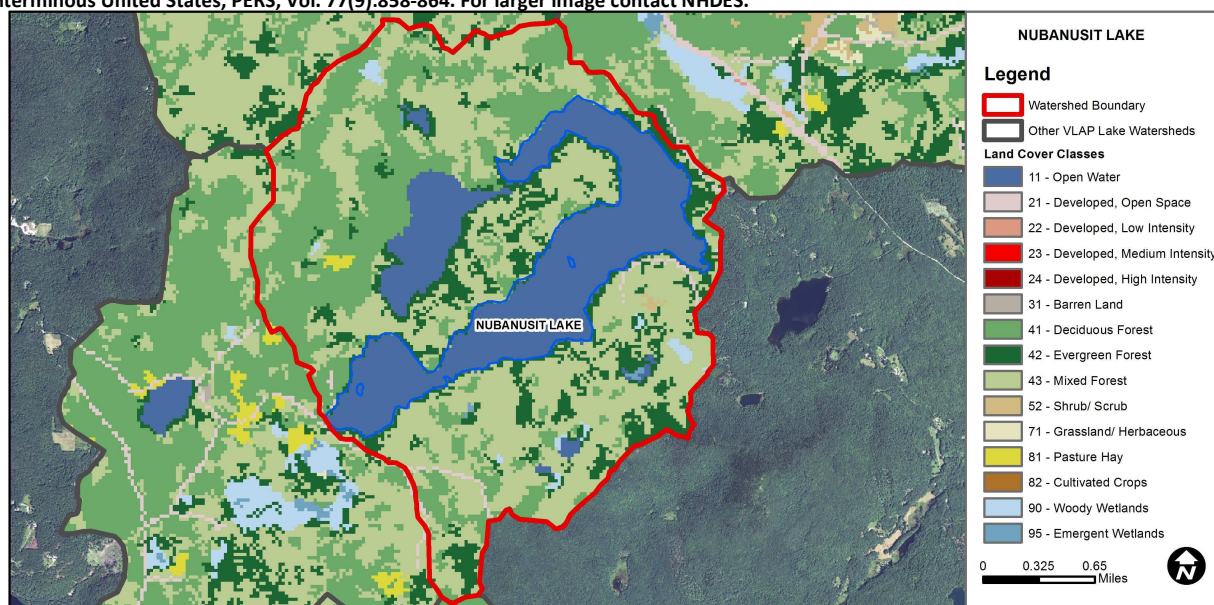
| Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	23.4	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	0.66	Deciduous Forest	22.98	Pasture Hay	0.22
Developed-Low Intensity	0	Evergreen Forest	12.97	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	38.92	Woody Wetlands	0.68
Developed-High Intensity	0	Shrub-Scrub	0.1	Emergent Wetlands	0.13

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

⬥ **CHLOROPHYLL-A:** Chlorophyll levels were very low on each sampling event and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!

⬥ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were very low and well below the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began.

⬥ **E. COLI:** Hancock Landing E. coli levels were very low and well below state standards for surface waters.

⬥ **TOTAL PHOSPHORUS:** Deep spot and tributary phosphorus levels were very low at all stations and well below the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with high variability between years.

⬥ **TRANSPARENCY:** Viewscope transparency improved from July to August and was much better than the state median. Historical trend analysis indicates stable viewscope transparency with low variability between years.

⬥ **TURBIDITY:** Deep spot and tributary turbidity levels were low on each sampling event.

⬥ **pH:** Deep spot and tributary pH levels were lower than the desirable range 6.5 - 8.0 units and potentially critical to aquatic life. Historical trend analysis indicates relatively stable epilimnetic pH with high variability between years.

⬥ **RECOMMENDED ACTIONS:** The increased frequency and intensity of storm events highlights the need to educate lake and watershed residents of ways to reduce stormwater runoff from their properties. DES' "Homeowner's Guide to Stormwater Management" is a useful resource. Keep up the great work!

Dissolved Oxygen Temperature Profile July, 2013
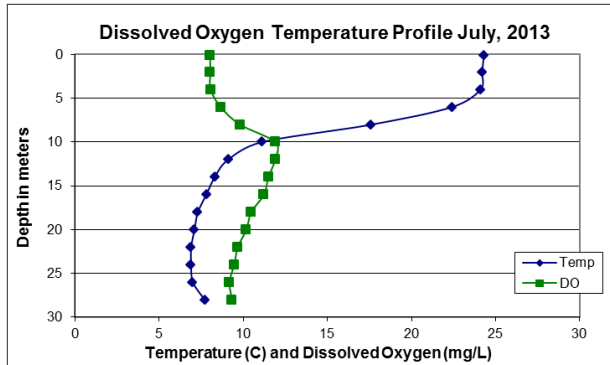
NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

Station	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Daloz Cove				15.4		5			0.27	6.18
Epilimnion	1.05	1.10		14.8		3	9.10	10.25	0.61	6.35
Metalimnion				15.9		4			0.60	5.75
Hypolimnion				16.4		6			0.34	5.30
Hancock Landing			3	15.4	10	3			0.29	6.22
Lot 10 Inlet				15.7		3			0.36	5.90
Outlet In Stream			3	15.7		3			0.31	6.23
Shadrack Pd Brook				15.4		3			0.31	6.01
Spoonwood Dam				15.5		3			0.27	6.16

Table 1. 2013 Average Water Quality Data for NUBANUSIT LAKE

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Improving	Data significantly decreasing.
Conductivity	Improving	Data significantly decreasing.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

Historical Trend Epilimnetic Conductivity and pH

Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data